



Intubation of the Larynx for Diphtheritic Croup.

BY

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Presented to the Chicago Medical Society, June 21, 1886.

*Reprinted from the Journal of the American Medical
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INTUBATION OF THE LARYNX FOR DIPHTHERITIC CROUP.

Some time ago I reported two cases of intubation of the larynx in children less than 3 years of age, both of which proved very satisfactory at first, but both died within two days. Shortly after that report I introduced the laryngeal tube in a child about $5\frac{1}{2}$ years of age. There was immediate relief from dyspnoea; the child expressed herself as thankful that it had been done; the friends and the attending physician (Dr. Creighton) were all much pleased, but the child sank and died of diphtheritic bronchitis within thirty-six hours.

Recently I have had two more fortunate cases, which have led me to believe that ultimate success may be due largely to the subsequent treatment. *Case IV*, the first of these, J. R., was a little girl 4 years of age, to whom I was called by Dr. E. Garrott on May 26. The child had suffered from a "bad cold" for five or six days, and had been croupy for forty-eight hours. When Dr. Garrott first saw it there was labored respiration, with recession of the chest walls with each inspiration. He sent for me as soon as possible, and we at once decided that intubation or tracheotomy would be necessary. I introduced the laryngeal tube without delay, and shortly afterwards the patient coughed up quite a large piece of false membrane. We directed that the child should be fed on soft solids and that fluids should be withheld as far as possible. We prescribed calomel, which was given in doses of from $\frac{1}{2}$ grain to 1 grain every two or three hours for the next three days.



Whenever any fluid was given it was by the half teaspoonful, and we finally found that this could be swallowed slowly as the child lay on her side without exciting cough. She was allowed all the ice she wished to quench thirst. There was considerable fever for two or three days, the temperature running between 102° and 103° F., but on the fourth day this had nearly disappeared. During this time mucous râles had been abundant over the whole chest. At the end of the fourth day the child triumphantly displayed to her friends the tube which she had just extracted by her own efforts, without cough, remarking that she knew she could get it out. There was no difficulty in breathing subsequently, and at the end of the sixth day the patient appeared perfectly well. In this case expectorants were given beneficially during a part of the treatment, and moderate doses of calomel were given for the first three days. The voice became natural about twenty-four hours after the tube had been expelled.

Case V.—On June 3 I was called by Dr. Lilly to see a little girl, I. D., 4 years 8 months old, suffering from diphtheritic croup. The child had been sick forty hours, having been taken with difficult breathing during the middle of the day. When I first saw her there was great dyspnoea with lividity of the face and recession of the chest walls; the symptoms indicating speedy death. As Dr. Lilly was obliged to leave the city I was asked to take charge of the case. With the assistance of Dr. E. Ingals I easily introduced the tube, which gave the patient immediate relief. I directed that not more than a half-teaspoonful of fluid be given at any time, and this very seldom. Soft solids were ordered and the child was allowed to suck ice when she wished it to quench thirst. My directions as to fluids were not thoroughly carried out in this case, and to this fact I attribute some of the subsequent trouble; for every time fluids were taken cough was excited, showing that some of it passed

into the trachea. I at first prescribed hydrarg. chlor. mite, gr. i every second hour, and a 1-grain tablet of quinine and chocolate every fourth hour.

Twelve hours after the tube had been inserted I found the respiration easy, but the temperature was 104° F. in the axilla. In the evening of the same day, twenty-four hours after the tube had been inserted, I found the patient in a most critical condition. Sonorous and sibilant râles, and that ominous dry tubular respiration which we have often heard after tracheotomy, were to be found all over the chest. The patient was extremely restless, face becoming livid, pulse irregular, rapid and very feeble, respiration imperfect and sighing, urine scanty, and the temperature in the axilla $104\frac{4}{5}^{\circ}$ F. Indeed, she presented all the symptoms of the last stage of diphtheritic bronchitis. I have observed such symptoms frequently, but never before have I seen the patient live more than three or four hours after they had become as marked as in this case. In this emergency I ordered respiratory and cardiac stimulants, prescribing tinct. nucis vom. m i, ammon. carb. gr. i, syr. ipecac m xii, and potass. acetate gr. iv, in syr. glycyrrhizæ, every second hour, to be given alternately with the powders of the mild chloride.

The next morning the breathing was somewhat improved and the temperature 104° F. The pulmonary signs were a little better, but not at all satisfactory. I then discontinued all other medicines and ordered tinct. nucis vom. m i, ammon. carb. gr. i, potass. acetat. gr. iv, and syr. ipecac m xxiii in syr. glycyrrhizæ, to be taken every hour. The relief obtained from this medicine was very pronounced. During the afternoon of the second day, forty hours after the tube had been inserted, it was coughed out. I saw the child about an hour later and found considerable difficulty in inspiration, with some recession of the chest walls. I could not reintroduce the same tube without using too much force, but I had no difficulty

in inserting the next size smaller, which at once relieved the stridor.

In the evening the patient was much better and moist râles could be heard over the whole chest. The next morning the temperature was $101\frac{2}{5}^{\circ}$ in the axilla.

On the fourth day after the first intubation the second tube was coughed up, but there was no necessity for its reintroduction. The child talked in a whisper, less distinctly after the tube was expelled than before. From this time on the child improved, though the signs of diphtheritic bronchitis continued. The medicines were gradually withdrawn, though they had to be given again on two or three occasions when the cough became dry.

At the end of a week the bronchi of the left lung had been mostly cleared, and the child appeared to be nearly well. On the thirteenth day I noticed the first improvement in the voice. On the eighteenth day the voice was still weak, and bronchial râles had not entirely disappeared, but otherwise the child appeared perfectly well.

Though in this case there had been no appearance of diphtheritic membrane in the fauces, there was no doubt about the membranous character of the disease; besides, its true nature was partially proven by the fact that the child's little nurse came down with diphtheria during her illness.

These cases illustrate the necessity of great care in the subsequent treatment after intubation for diphtheritic croup. We must not forget that we have to deal with a serious disease even though the larynx may be kept open. We must not forget the danger from the entrance of food or fluids into the trachea, and we must use every possible precaution to prevent it. If we analyze the reports we find that a very large percentage of the cases of intubation of the larynx have died of pneumonia, and this was undoubtedly due largely to the entrance of foreign substances. I believe that when we attend carefully

to the administration or non-administration of food and drinks, and when we promptly meet the indications for expectorants and cardiac and respiratory stimulants, we will be able to save a much larger percentage of cases than shown by the present history of the operation.

The admirable paper just presented by Dr. Waxham shows that the results of this operation even now are quite as good as those of tracheotomy for young children. When we consider the ease with which this operation may be done, its freedom from danger, and its good results, we must consider any one grossly culpable who would allow a child to die from croup without giving it a trial. As parents and friends will readily consent to this operation though they would not to tracheotomy, it will be a means of saving hundreds of lives which would otherwise be sacrificed. When we look over the record and reflect that of the cases already saved by this method probably not 5 per cent would have been saved in other ways, and as we look into the future and see the immense possibilities of this operation, we must not forget our debt of gratitude to Dr. O'Dwyer for his invention, and to Dr. Waxham for his enthusiastic employment of it; but most of all to the profession at large, which tolerates no secret methods, but generously donates to mankind every improvement in the healing art.

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